The objection started is a serious one, for, if the deductive method is wrong at all, it is so absolutely, and must on no occasion be allowed a place in scientific reasoning, but—without any half-measure allowances—must be excluded altogether as a false and dangerous element of philosophy. If, on the other hand, we take exception, as I think we may do, to the exponent's opening expression,—"having formulated a few fundamental assumptions, to spin out from these explanations of what we see in the world about us . . . is merely a literary performance,"—as misleading in its main idea, we may still hold the method to be a perfectly scientific one.

The evolutionist, who has once ascertained by various careful experiments and extensive researches that there is a direct natural sequence of events in connection with certain phenomena, may be allowed to adopt set principles as recognised laws of action, fully as much as Euclid in the demonstration of problems from his formulated axioms. But perhaps Prof. Dyer's argument rests in reality upon his use of the word "assumptions," and thus his objection is merely urged against the false method assumed in his premise, rather than against deductive biology as a method of procedure, as he would have us believe. And so far, of course, every one will readily enough accept Prof. Dyer's remark as it stands.

But the conclusion that "the deductive method is a bad way of solving morphological problems" is opposed to all the evidence of Darwin himself, who constantly applied those well-tested principles which he had discovered even by this very method, and upon the bases of such fundamental *truths* it was that he reared his wonderful system. Are not the studies of comparative embryology and osteology, of comparative histology and biology, each founded entirely upon the method of deductive analogy?

As another sufficient witness, Mr. Wallace may be quoted as having adopted the same course with such remarkable results, and throughout his writings bears testimony to the value of deductive inference as a method of procedure, and I will deduce a couple of sentences taken from his work on "Island Life," bearing directly upon our point.

"On the theory of evolution," he says, "nothing can be more certain than that groups now broken up and detached were once continuous, and the fragmentary groups and isolated forms are but the relics of once widespread types which have been preserved in a few localities where physical conditions were especially favourable, or where organic competition was less severe. The true explanation of all such remote geographical affinities is that they date back to a time when the ancestral group of which they are the common descendants had a wider or a different distribution," &c., p. 296. And, in summary of the chapters on Madagascar, Mr. Wallace remarks: "The method we have followed in these investigations is to accept the results of geological and palæontological science, and the ascertained fact as to the powers of dispersal of the various animal groups; to take full account of the laws of evolution as affecting distribution, and of the various ocean depths as implying recent or remote union of islands with their adjacent continents; and the result is that wherever we possess a sufficient knowledge of various classes of evidence we find it possible to give a connected and intelligible explanation of all the most striking peculiarities of the organic world" ("Island Life," p. 419). We may then assuredly decide that the deductive system of logic,—the use without abuse of certain known factors,—instead of being in any way "bad," is (granting always that the general laws of Nature applied are sufficiently trustworthy) found to be even superior to the older and tardier processes of induction, to which the mere collectors of the facts dealt with have limited themselves, and has proved itself to be the *only* means of elucidating many of those abstruse problems, the solution of which has been conducive of such immense gain to the scientific philosophy of our day.

William White

Science and Art

As a rule it would be the extreme of absurdity for me to venture an adverse remark on the criticism of an art critic on paintings, yet there is one single exception regarding which I may perhaps be permitted to say a word or two.

In the very interesting critique on some pictures in the Royal Academy, written evidently by a master-hand, there is one picture—No. 764, "a snowstorm" (see Nature, vol. xxviii. p. 76), not only somewhat severely, but I think unjustly or incorrectly, commented upon, because "there is not a single snowflake to be seen in the first twenty yards."

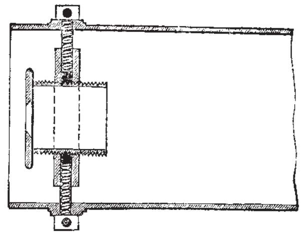
I have witnessed and been in the midst of many snowstorms in America, and some in Scotland. In a large proportion of these not a snowflake was to be seen, the snow being in very minute particles, so fine as to penetrate all openings in the clothing, however small. Snowstorms of this kind are the most dismal, bitter, and chilling of any.

On looking at Mr. Farquharson's picture, I was struck with its resemblance to a most unpleasant evening and night spent in the hills between the Coppermine River and Great Bear Lake, about 50 miles north of the Arctic circle. It being early winter, the weather was not very cold, but there was a combination of fog, fine snow (no snowflakes), and snowdrifts, which produced one of the most dismal and dreary scenes imaginable.

4, Addison Gardens, May 29 John Rae

Transit Instrument

In your issue of the 17th ult. (vol. xxviii. p. 51) you notice a cheap form of transit instrument introduced by me, and you point out the defect that no means are provided for placing the cross wires truly vertical. In all the most recent instruments which have been made this difficulty has been met by an arrangement which answers so effectively that I think it may interest others beyond those who are likely to use the instrument in question.



I employ the ordinary diaphragm with the usual four stretching screws, and the collimation is corrected in the usual manner by these screws. Into this diaphragm I insert a tube with a very fine screw, on the outside of which is fixed a plate carrying the cross hairs; by screwing this tube in or out the focus may be perfectly adjusted for objects at an infinite distance, while a slight additional movement to the right or left enables one at the same time to adjust the cross hairs truly vertical.

Latimer Clark

Sea-Shore Alluvion, Dungeness

Reverting to an article in your journal of July 28, 1881, and a letter of mine in that for April 20, 1882, the following at the present time may be of interest:—

As regards the local wasting away in the bays east and west of Dungeness and the redistribution of the materials at Lighthouse Point;—on the west side the whole margin from Rye Bay to "Denge Marsh Gut," a distance of eight miles, has receded of late years; this is shown by the fact that the Denge Marsh authorities have recently erected a clay counter sea-wall at the back of the modern shingle "fulls" in front of the "Midrips" and "Wicks" (small land-locked pools of water) to check the overflow of the sea in south-west gales. This action is felt to the eastward in front of the "Holmstone," the Lydd coastguard station, and up to "Denge Marsh Gut," eastward of which we have modern "fulls,"—the resultant in part of this waste, overlapping and adding to the south-east outline of the "Ness" or extreme projection of this natural mole of shingle, and thence travelling northward until reaching "Great Stone End," which forms the southern boundary of Romney "Hoy" or Bay, northward of which Dymchurch Wall, an artificial stone-faced sea-wall three to four miles in length, is sufficient evidence of the modern local waste and necessity for sea-defences to the rich grazing district of Romney Marsh. Still further northward the sea-wall recently constructed by the municipal authorities of Hythe is equally suggestive of this recession. Going no further back than Cole's survey of 1617, we have a *status quo ante* very nearly, as regards outline from Rye Bay to within two miles of the lighthouse, and this accompanied by a local south-east increase and movement around the lighthouse,

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involving towards the end of the last century the removal of the old and erection of the present tower, which, due to this increase, is now very much in the same relative position as its predecessor of 1792. This local accumulation runs northward to "Romney Hoy" but is accompanied beyond this again northward by a constant struggle to preserve the sea frontage right up to Hythe.

Take the Royal Military Canal, twenty miles long, as the base of a triangle running out ten miles seaward therefrom, with two inclined sides of ten miles and fourteen miles, or twenty-four miles of sea margin in all; of this we have on the west side eight miles of stationary or receding shore, thence two miles to the "Ness," and northward of it four miles, or six miles in all of local increase, and northward again ten miles of stationary or receding shore.

Now under these conditions who is to fix, and on what principle, the landward boundary of what may be termed the "live beach," and is it not this very material (not grass-grown or covered as it ultimately becomes by vegetation) that lies most temptingly for removal?

A very tentative advertisement has recently been displayed at the Charing Cross terminal station of the South-Eastern Railway offering sea-beach or shingle for sale. J. B. REDMAN

6, Queen Anne's Gate, Westminster, S.W., May 28

Sheet Lightning

SOME people never see lightning; I have met one lady who cannot, and have heard of other instances. The question suggests itself, consequently, whether the duration of a flash of lightning is sufficient to produce a visible image on the retina or whether the image is only produced after successive reflections in the eye itself, which might be too few to produce such an image in the case of people with very dark eyes; if the latter is the case, this would go far towards accounting for the difficulty there is in deciding as to the character of sheet lightning as far as any optical test is concerned, but would indicate the possibility of further light being thrown on the subject by photography.

Ripon, May 24 N. W. TAYLOR

[WE *never* heard of any one (except blind people, of course) who could not see lightning, nor have we any idea how the colour of the iris (or reflection either) can have to do with it. As to the *duration* and visibility of a flash, see NATURE, vol. xxii. pp. 340-41. As to "summer lightning," the following statement from Prof. Tait's lecture on Thunderstorms (NATURE, vol. xxii. p. 438) may be of interest:—"I have said nothing of what is commonly called *summer lightning*, which is probably, at least in a great many cases, merely the faint effect of a distant thunderstorm, but which has also been observed when the sky appeared tolerably clear, and when it was certain that no thunderstorm of the ordinary kind had occurred within a hundred miles. In such cases it is probable that we see the lightning of a storm which is taking place in the upper strata of the atmosphere, at such a height that the thunder is inaudible, partly on account of the distance, partly on account of the fact that it takes its origin in air of small density." We know that Prof. Tait speaks from having himself seen what he here describes, which shows unquestionably that (*on some rare occasions*) its source is really above our heads, and not (as is the general rule) a thunderstorm of the ordinary kind several miles off.—ED.]

Curious Nest-building—"Scarecrows"

THERE is an old house at Whetstone at which a robin lately built its nest in a singular position. The gate in the garden wall, opposite the door, is opened from inside by a servant, when the bell rings. To do this she goes to a little hole in the wall close by the gate, and pushes along a small bell-pull handle in the line of the wall (the motion very slight). In the space behind this handle, and evidently scanty for the purpose, a robin built its nest, and it is now filled with little birds, which stretch out their yellow gaping beaks when one pushes the handle. The case is the more curious in that the master of the house, fearing inconvenience on both sides, had the nest twice removed when in course of building; but the robin persisted, and was ultimately allowed. A little way along from this gate is an old disused pump, the front of which opens on hinges. Round the vertical rod of this pump a tomtit has laboriously built up a pile of twigs and various scraps, quite filling the body of the pump for about a foot in depth; and on the top is the nest proper, with six or seven eggs. The handle is never moved by any one. The bird apparently enters at the hinge.

While on this topic I would ask, Has any systematic study been given to the question of scares for birds? I recently sowed some grass and clover seed on a lawn, and, to scare the sparrows, stuck up some bits of wood, with square pieces of paper, attached with string to flutter in the wind; but from the occasional position of sparrows on the lawn, I suspect the radius of action of these scares was decidedly limited. Are birds most scared by still effigies of persons, or by sight of movements apart from such imitation, or again by sounds, as in a scare I saw lately, where pieces of glass were hung so as to clink together?

Finchley, May 29 M.

Ground Ivy

I SHOULD like to know if a peculiarity I often see in the position of the stigmas in the pistillate form of this flower is generally observed. Instead of the stigmas opening up and down from the style as usual in Labiates, they often diverge to right and left across the flower, and the style also often curves forward, so as greatly to facilitate cross-fertilisation as it seems to me. If I am right this slight change may be of interest as a step towards diœciousness. I found this peculiarity in 291 out of 531 flowers with abortive stamens which I looked at; the stigmas opened in the usual way in 85, while in 141 one stigma was vertical and one horizontal; 14 cases were doubtful. In some unopened buds, the stigmas already diverged horizontally. For comparison I looked at 418 perfect flowers, and here, while the stigmas of 360 opened as usual, only 15 spread horizontally; 34 had one stigma vertical and one horizontal, and 9 cases were doubtful. S. S. DOWSON

Geldeston, May 22

Meteor

I HAVE just seen a very splendid meteor (at 10.40 p.m.). I watched it during about thirty seconds, in which time it traversed the heavens from about the point south-east nearly to that of north-west, where it burst. Its path was nearly parallel to the horizon, probably approaching it at an angle of about 5 degrees. When first seen it appeared nearly yellow as to colour, with a very fine tail, but just before it broke up the colour changed to white, and the fragments reminded me very much of some "magnesium stars" fired from a rocket. No doubt you will have a quantity of communications concerning this meteor. I wondered whether any one else had noticed this appearance.

Filston Hall, Shoreham, Kent, June 3 A. HALL

WASPS (L. C.).—Thanks; but there is nothing new in your observations.

MIMICRY (DR. KESTEVEN).—The occurrence is perfectly well known. It is probably *Urapteryx Sambucana*. You have mistaken the anterior for the posterior extremity.

RECENT ORNITHOLOGICAL WORKS [1]

TO those who imagine that British ornithology is worked out, and that there is nothing left to do in this well-worn field, we commend the study of the present book, as presenting us with a delightfully fresh view of an old and familiar subject. The author is already well known to the public from his admirable books of Siberian travel, but it is only his private friends who have been aware of the devotion to this favourite branch of science which has characterised Mr. Seebohm for many long years, when most people imagined him to be absorbed in business in the north of England. Brief excursions to points of interest on our own coasts, snatched in intervals of scanty leisure, succeeded in after years by more important expeditions to Greece and Asia Minor, the River Petchora, the Yenisei, &c., have given him an acquaintance with field-ornithology which is surpassed by few of his contemporaries, while the fact that the dry details of literary research have no terrors for him is proved by the

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[1] "A History of British Birds, with Coloured Illustrations of their Eggs." By Henry Seebohm. Published by the Author, 1883.

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